

The Quilt

A Collaboration of U.S. Research and Education Networks



The Quilt

The Quilt is a non-profit collaboration of our country's advanced regional research and education networks. Created in 2000, The Quilt is a member-powered, vibrant forum where leaders from these networks come together to exchange knowledge, experience and ideas to collectively advance networking for research & education.

The Quilt aims to influence the national agenda on information technology infrastructure, with particular emphasis on networking for research and education. Through this coalition, Quilt members collaborate to promote the delivery of networking services at lower cost, higher performance and greater reliability and security.

Quilt members are our country's not-for-profit networking organizations serving research and education with similar missions to; support research and education, collaborate, manage advanced networks, provide advanced networking services and further knowledge and innovation.



Introductions

- The U.S. non-profit research and education networks are funded, governed and structured differently. These aspects of the organizations reflect the diverse and complex environments of the communities and states in which they operate.
- While diverse in some aspects, these organizations are similarly missioned with common goals which are to provide an advanced network infrastructure, services and applications which support of the research and education goals of the institutions each serve.



Introductions

This diversity is highlighted by the represented Quilt members organizations

Organization	State	Business Structure	Middle-Mile	Last Mile
MCNC	North Carolina	501(c)3	Owned Fiber	Fiber/Leased Lines
Merit Network	Michigan	501(c)3	Owned Fiber	Fiber/Leased Lines
MOREnet	Missouri	Consortium under University of Missouri System	Lit Fiber Leased Lines	Leased Lines
OARnet	Ohio	Consortium under State of Ohio Board of Regents, The Ohio State University as fiscal agent	Long-Term IRUs/Leased Lines	Leased Lines



Quilt E-rate Comments

- Investment in Scalable Broadband Connections
- Determine the Best Long-Run Approach
- Flexible Infrastructure Needs the Appropriate Service Delivery Model for Schools and Libraries
- Network Quality Counts for Schools and Libraries
- Bandwidth Must Reach the Users
- Education Does Not End at 3 PM
- Consortia Applications Yield Pricing Improvements and Greater Efficiencies



Key Points

- Majority of school districts have fiber at the district level -- the greatest need is for larger bandwidth connections to school buildings and classrooms
- No general rule of thumb can be used to estimate construction costs for fiber to every school – costs are dependent on a variety of factors
- Often, Ethernet-based connections starting at 100Mb are less expensive than smaller connections delivered on
- Non-profit research and education networks are ready to partner and contribute fiber infrastructure management expertise and experience serving the statewide educational sectors to capital investment pilot projects



OARnet

Accelerating Ohio's Future

THE QUILT



OARnet

An **OH·TECH** Consortium Member

OARnet Backbone Connections

LEGEND

- 88 Higher Education Campuses
- 76 Higher Education Regional Campuses
- 23 K-12 Education ITCs
- 15 Local Governments or State of Ohio Agencies
- 30 Industry Partners
- 6 Health Care Facilities
- 9 Public Broadcast Stations



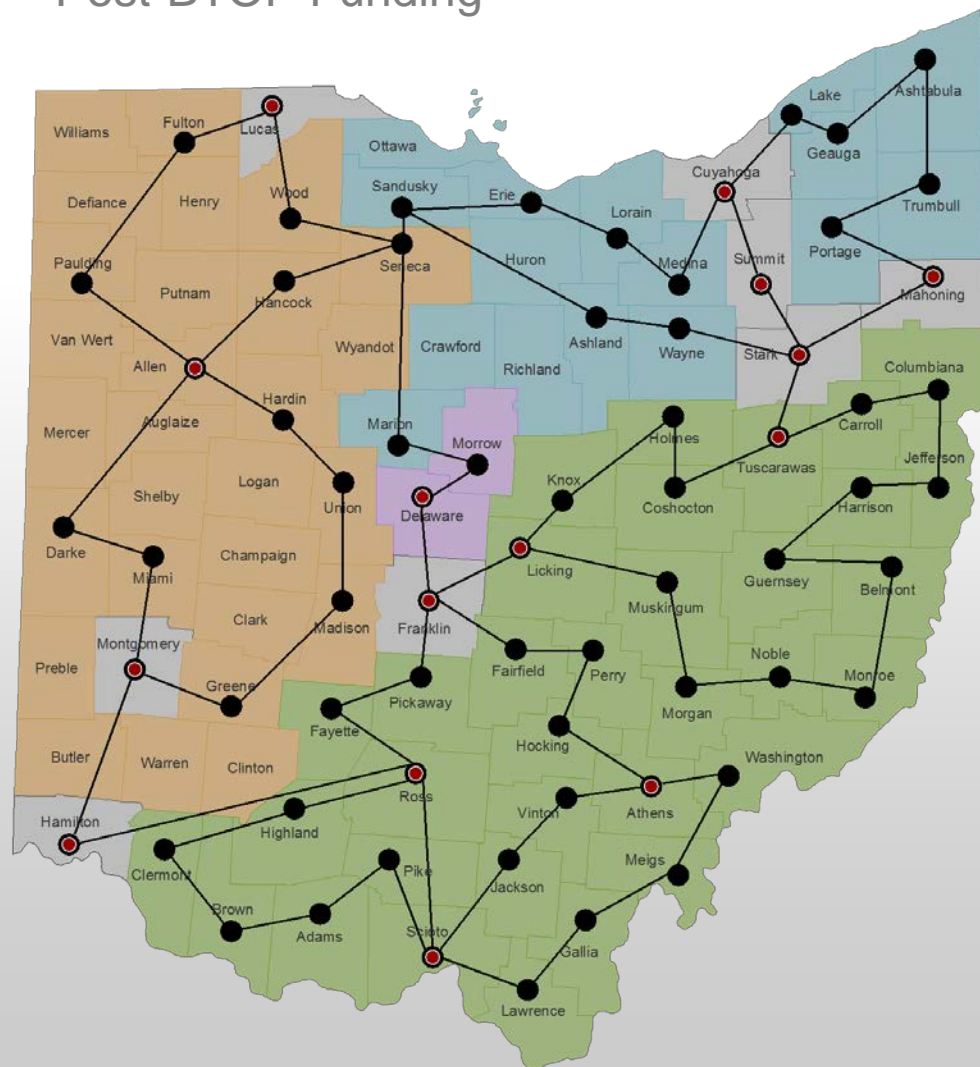
Impact: OARnet's Network

Middle Mile Connections
Pre-BTOP Funding



- OARnet Middle Mile PoPs
- ARRA Middle Mile Expansion PoPs
- OARnet/OMMC Middle Mile PoPs

Middle Mile Connections
Post-BTOP Funding



Middle Mile Community Anchor Institutions

As Provided by OMMC Partners



K-12 Schools	622
Libraries	166
Medical/Healthcare	353
Community Colleges	25
Public Housing	476
Public Safety	407
Other Higher Ed Institutions	19
Other Community Support Orgs.	612
Other Gov. Facilities	722
Total CAI	3,424



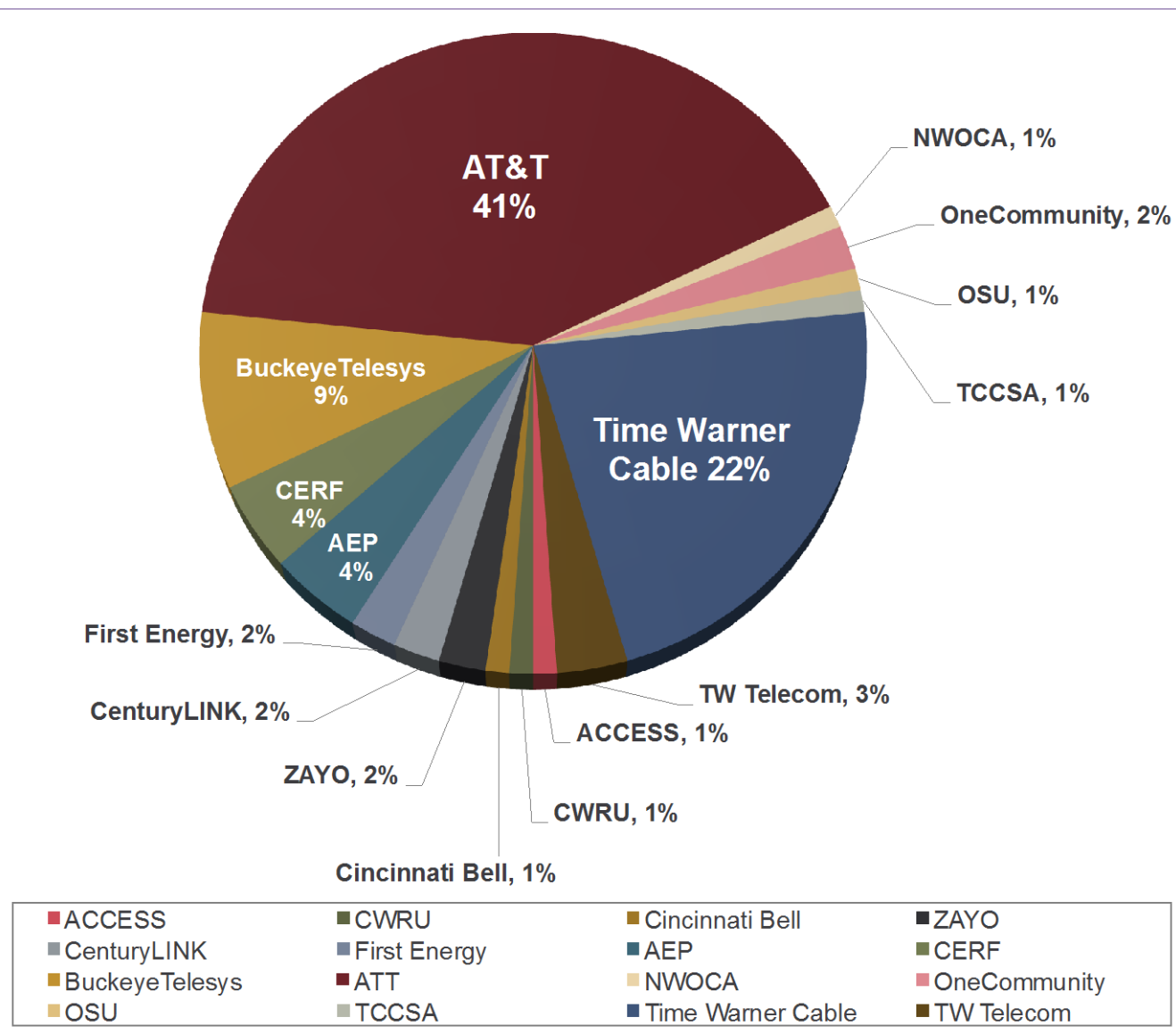
K-12 Schools	705
Libraries	165
Medical/Healthcare	279
Community Colleges	12
Public Housing	377
Public Safety	322
Other Higher Ed Institutions	16
Other Community Support Orgs.	504
Other Gov. Facilities	488
Total CAI	2,868



K-12 Schools	1,403
Libraries	94
Medical/Healthcare	189
Community Colleges	39
Public Housing	0
Public Safety	74
Other Higher Ed Institutions	14
Other Community Support Orgs.	29
Other Gov. Facilities	36
Total CAI	1,878



Partnerships with Industry - Last Mile Connection by Service Providers



Ohio E-Rate Support

- Federal E-Rate program available to:
 - Eligible K-12 schools
 - Public libraries
- Provides discounts on:
 - Telecommunication services
 - Internet access
 - Internal connections hardware
 - Maintenance costs
- Ohio Department of Education provides planning, support and information to program applicants and recipients

FY2012/July 1, 2012–June 30, 2013

Total funding received to date - \$74M

FY2013/ July 1, 2013–June 30, 2014

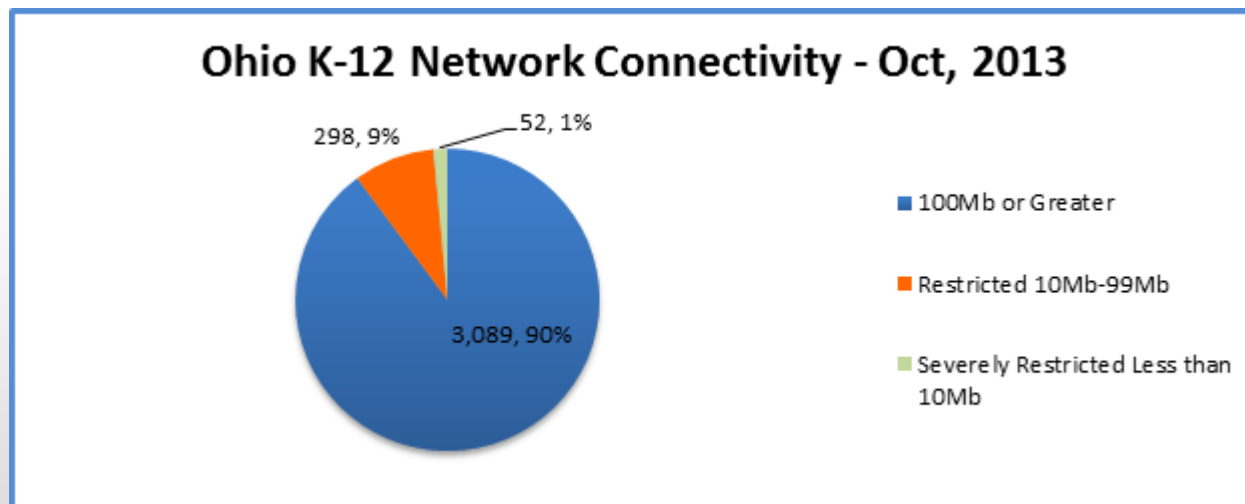
Total funding requested - \$123M

Priority 1 Requests - \$85.8 mil

Priority 2 Requests - \$37.3 mil



Low Capacity Broadband OH K-12 School Buildings



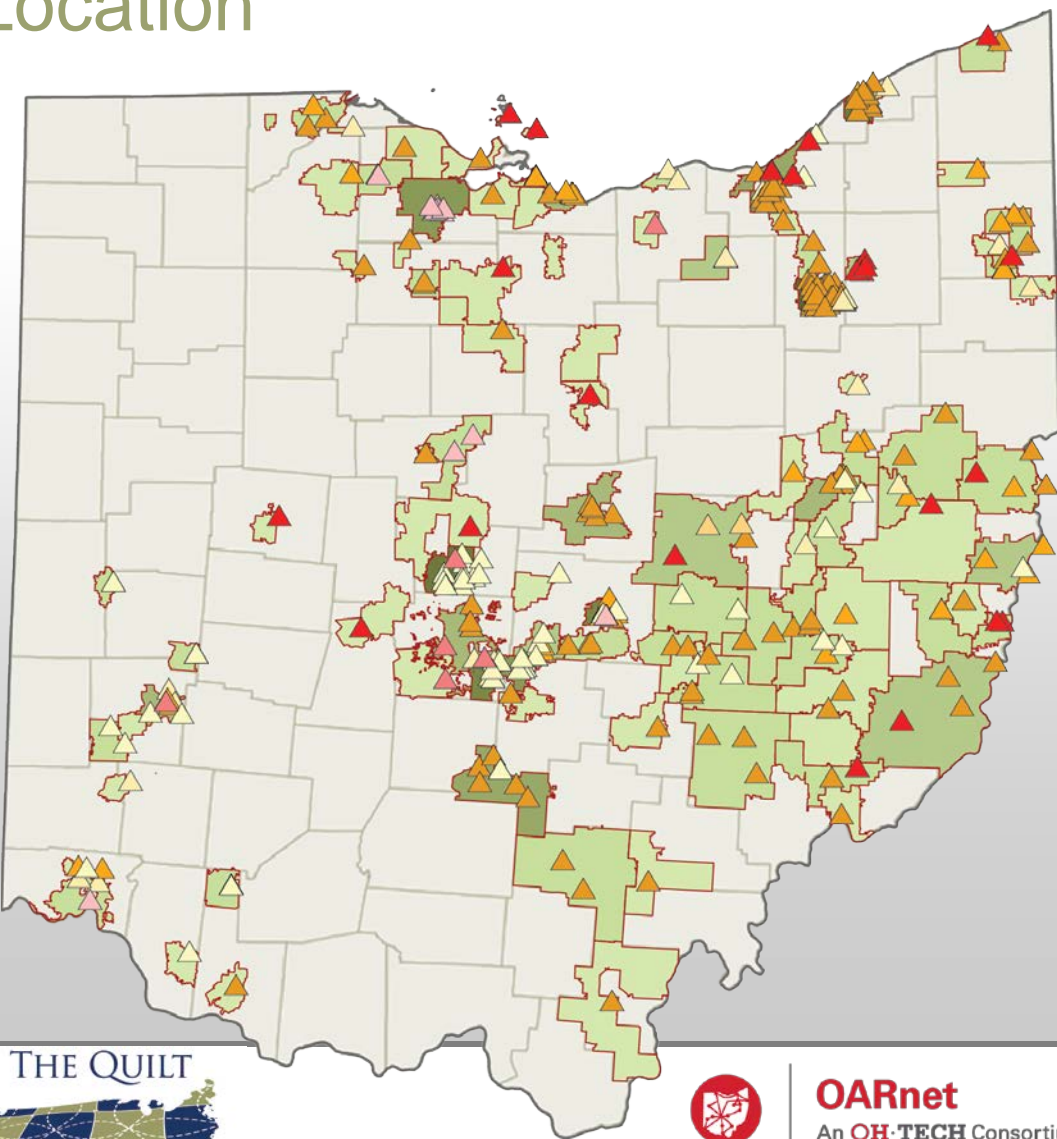
- Approximately 350 buildings below the new 100Mb standard
- Approximately 3,089 buildings (90%) meet the new 100Mb standard

Low Capacity Broadband OH K-12 School Buildings by Location

Deploying fiber to remaining restricted K-12 schools in the state is estimated to cost \$60M-\$80M

Department of Administrative Services
Office of Information Technology
Enterprise Shared Services

Ohio
Geographically
Referenced
Information
Program



Severely Restricted Network Speed Mbps

- ▲ 1 with 0 Mbps
- ▲ 30 with 2 Mbps
- ▲ 7 with 4 Mbps
- ▲ 15 with 5 MBPS

Restricted Network Speed Mbps

- ▲ 164 with 10 Mbps
- ▲ 35 with 20 Mbps
- ▲ 2 with 25 Mbps
- ▲ 30 with 30 Mbps
- ▲ 62 with 50 Mbps

of Buildings per District *

- 1
- 2 - 3
- 4 - 5
- 6
- 7
- 8 - 9
- 10 - 11
- 12 - 13
- 14 - 51

* Includes Community Schools



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